

CLAIMS

1. A flame-retardant polybutylene terephthalate resin composition wherein (A) 20-70% by weight of a polybutylene terephthalate resin or a mixture of a polybutylene terephthalate resin and a polyethylene terephthalate resin, (B) 1-20% by weight of a vinyl based resin, (C) 1-20% by weight of a phosphoric acid ester, (D) 1-30% by weight of a salt of a triazine based compound and cyanuric acid or isocyanuric acid, and (E) 0.1-5% by weight of an alkaline earth metal compound are compounded.

2. A flame-retardant polybutylene terephthalate resin composition according to claim 1, characterized in that the polybutylene terephthalate resin constituting the mixture of the polybutylene terephthalate resin and the polyethylene terephthalate resin is at 5-95% by weight, and the polyethylene terephthalate resin is at 5-95% by weight.

3. A flame-retardant polybutylene terephthalate resin composition according to any one of claims 1-2, wherein the (B) vinyl based resin is an acrylonitrile/styrene copolymer containing acrylonitrile at 10wt.% or greater and less than 50wt.%.

4. A flame-retardant polybutylene terephthalate resin composition according to any one of claims 1-3, wherein the (E) alkaline earth metal compound is a compound having one or more species of alkaline earth metals selected from magnesium, calcium and barium.

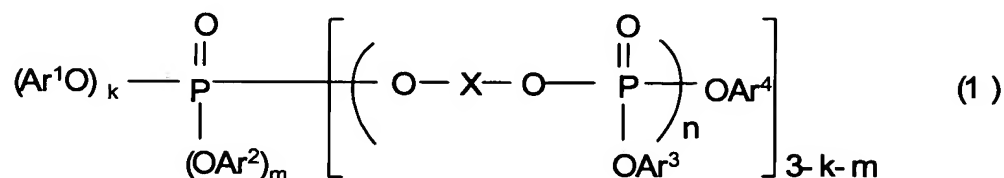
5. A flame-retardant polybutylene terephthalate resin composition according to any one of claims 1-4, wherein the (E) alkaline earth metal compound is magnesium hydroxide and/or calcium carbonate.

6. A flame-retardant polybutylene terephthalate resin composition according to any one of claims 1-5, characterized in that (F) 0.05-5% by weight of an epoxy compound is compounded.

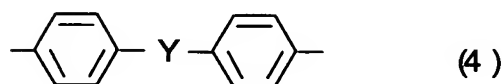
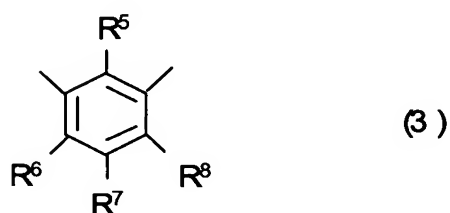
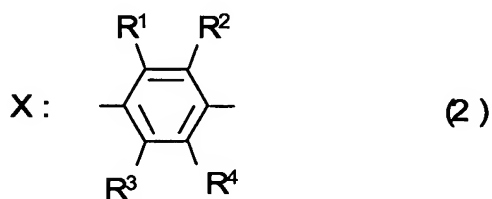
7. A flame-retardant polybutylene terephthalate resin composition according to claim 6, wherein the (F) epoxy compound is an epoxy compound including a glycidyl ether compound and/or a glycidyl ester compound having an epoxy equivalent of 500 or less.

8. A flame-retardant polybutylene terephthalate resin composition according to claim 6, wherein the (F) epoxy compound is an epoxy compound including a monofunctional glycidyl ester compound having an epoxy equivalent of 500 or less.

9. A flame-retardant polybutylene terephthalate resin composition according to any one of claims 1-8, wherein the (C) phosphoric acid ester is an aromatic phosphoric acid ester represented by the following (1) expression.



(In the above expression, Ar^1 , Ar^2 , Ar^3 and Ar^4 represent the same or different aromatic groups that do not contain a halogen. Furthermore, X represents a structure selected from the following expressions (2)-(4). In the following expressions (2)-(4), R^1 to R^8 represent the same or different hydrogen atoms or alkyl groups having carbon numbers of 1-5, Y represents a direct coupling, O, S, SO_2 , $\text{C}(\text{CH}_3)_2$, CH_2 , CHPh , and Ph represents a phenyl group. Furthermore, n in the (1) expression represents the degree of polymerization, and is an integer of 0 or greater. Furthermore, k, m in the (1) expression are each an integer of 0 or greater and 2 or less, and $(k+m)$ is an integer of 0 or greater and 2 or less.)



10. A flame-retardant polybutylene terephthalate resin composition according to any one of claims 1-9, wherein the (B) vinyl based resin is a vinyl based resin in which an epoxy group-containing vinyl based monomer or an unsaturated acid anhydride is graft- or co-polymerized, or a vinyl based resin epoxidized by an epoxidizing agent.

11. A flame-retardant polybutylene terephthalate resin composition according to any one of claims 1-10, wherein the (B) vinyl based resin is an acrylonitrile/styrene copolymer in which a glycidyl methacrylate is copolymerized and which contains acrylonitrile at 10wt.% or greater and less than 50wt.%.

12. A flame-retardant polybutylene terephthalate resin composition according to any one of claims 1-11, wherein the (B) vinyl based resin is a multilayer structure that constitutes an outer layer (shell layer) of a multilayer structure made up of an innermost layer (core layer) and the outer layer (shell layer) covering the innermost layer.

13. A flame-retardant polybutylene terephthalate resin composition according to any one of claims 1-12, wherein the compounding ratio of the (C) phosphoric acid ester and the (E) alkaline earth metal compound is within a range of the following expression (5).

$$\frac{W_p}{M} \times N_p \times 0.03 \leq \frac{W_a}{M_a} \times 2 \leq \frac{W_p}{M} \times N_p \times 0.6 \quad (5)$$

(In the above expression, W_p is the compounding amount (% by weight) of the (C) phosphoric acid ester, and M is the molecular weight of the (C) phosphoric acid ester, and N_p is the number of phosphoric acid ester linkages of the (C) phosphoric acid ester, and W_a is the compounding amount (% by weight) of the (E) alkaline earth metal compound, and M_a is the molecular weight of the (E) alkaline earth metal compound.)

14. A flame-retardant polybutylene terephthalate resin composition according to any one of claims 1-13, wherein a relative tracking index is 400V or greater.

15. A formed article formed from a flame-retardant polybutylene terephthalate resin composition according to any one of claims 1-13 and used as a machine mechanism component part, an electrical/electronic component part, or an automotive component part.

16. A formed article formed from a flame-retardant polybutylene terephthalate resin composition according to any one of claims 1-13 and used for a breaker, an electromagnetic switch, a focus case, a flyback transformer, or a fuser of a copier or a printer.